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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/028,470

12/19/2001

Matthew J. Holliman

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04/06/2004

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EXAMINER

KIM, CHONG R

ART UNIT

PAPER NUMBER

2623

DATE MAILED: 04/06/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,470

Applicant(s)

HOLLIMAN ET AL.

Examiner

Charles Kim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Amendment and Arguments

1. Applicant's amendment filed on January 21, 2004 has been entered and made of record.
2. Applicant's arguments with respect to claims 1-22, 28 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14, 19, 22, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tian et al., International Publication No. WO 02/23468 A1 ("Tian"), the article entitled "Meeting QOS guarantees by End-to-End QOS Monitoring and Adaptation" by Huard et al. ("Huard"), and Chen et al., U.S. Patent No. 6,400,826 ("Chen").

Referring to claim 1, Tian discloses a method of monitoring host signal quality, comprising:

- a. embedding a watermark in a data set (page 13, lines 2-11)
- b. processing the data set using some parameter set (page 12, lines 4-20. Note that the packet distribution system processes the data set using some parameter set)

c. determining degradation of the host signal quality by recovering a signal in the data set (page 13, line 10-page 14, line 10).

Tian does not explicitly disclose that the watermark is derived by quantizing the host signal using an ensemble of quantizers. However, this feature was exceedingly well known in the art. For example, Chen discloses a watermark that is derived by quantizing a host signal using an ensemble of quantizers (col. 11, lines 14-34).

Tian and Chen are both concerned with digital watermarking techniques. Chen's method achieves efficient packing, facilitates computation of the embedding values, and facilitates the watermark extraction process (Chen, col. 40, lines 14-19). Therefore, it would have been obvious to modify Tian's watermark so that it is derived by quantizing the host signal using an ensemble of quantizers, as taught by Chen, in order to enhance the watermarking process.

Tian and Chen do not explicitly disclose the step of adjusting the parameter set for processing (distributing) the data set based on the presence of data corruption determined from the recovered signal. However, this feature was exceedingly well known in the art. For example, Huard teaches the step of adjusting a parameter set for data processing (distributing) based on the presence of data corruption determined from a recovered signal [pages 352-353, sections 4.2 and 4.3. Huard explains that the transmission rate is adjusted based on the presence of data corruption (loss) determined from a recovered signal (sequence numbers)].

Tian, Chen, and Huard are all concerned with image processing methods. Tian and Chen are concerned with processing (distributing) the data with high quality, and explain that the watermark signal is implemented to detect any quality degradation of the signal (Tian, page 15, lines 3-6). Huard's method utilizes the detected quality degradation from the received signal to

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adjust the transmission parameters, thereby maintaining a high quality signal (Huard, page 353, section 4.3). Therefore, it would have been obvious to include the teachings of Huard in the method of Tian and Chen, so that the parameter set for the data processing (distributing) is adjusted based on the presence of data corruption determined from the recovered signal, in order to enhance the performance of the system by maintaining a high quality signal.

Referring to claim 2, Tian further discloses processing the data set by transform encoding the data set (page 8, lines 17-24).

Referring to claim 3, Tian further discloses processing the data set by packetizing and transmitting the data set (page 12, lines 12-20).

Referring to claim 4, Tian further discloses identifying image frame errors in packet transmitted audiovisual data sets (page 12, lines 12-14).

Referring to claim 5, Huard further discloses that adjusting the parameter set further comprises modifying network bandwidth to compensate for data corruption of the data set (page 353, section 4.3, second paragraph. Note that reducing the sending rate is interpreted as being analogous to modifying network bandwidth).

Referring to claim 6, Tian further discloses that determining degradation of the host signal quality further comprises quantitatively measuring spatial extent of corruption of image data sets (page 14, lines 12-32).

Referring to claim 7, Tian further discloses that determining degradation of the host signal quality further comprises quantitatively measuring temporal duration of corruption of data sets (page 17, lines 7-27).

Referring to claims 8-14, see the rejections of claims 1-7 respectively above.

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Referring to claim 19, see the rejection of at least claim 5 above.

Referring to claim 22, see the discussion of at least claim 15 below. Tian and Chen do not explicitly disclose a back channel transmitter to communicate information to the processing module to adjust the parameter set for the data processing based on the presence of data corruption detected by the watermark recovery module.

Huard discloses a back channel transmitter to communicate information to a processing module to adjust the parameter set for the data processing based on the presence of data corruption (page 352, section 4.2).

Therefore, it would have been obvious to combine the teachings of Tian, Chen, and Huard for the reasons stated above (claim 1).

Referring to claim 28, Tian discloses a method of monitoring host signal quality, comprising:

- a. embedding a watermark in a data set to allow reception-side determination of quality of the data set by measuring the amount (strength) of a recovered watermark (page 13, line 2-page 14, line 10)
- b. transmitting the data set having the embedded watermark (page 12, lines 12-20)
- c. accepting information about the recovered watermark (page 14, lines 8-10. Note that the recovered watermark indicates the quality of the transmitted data set).

Tian does not explicitly disclose that the watermark is derived by quantizing the host signal using an ensemble of quantizers. However, this feature was exceedingly well known in the art. For example, Chen discloses a watermark that is derived by quantizing a host signal using an ensemble of quantizers (col. 11, lines 14-34).

Tian and Chen are both concerned with digital image watermarking techniques. Chen's method achieves efficient packing, facilitates computation of the embedding values, and facilitates the watermark extraction process (Chen, col. 40, lines 14-19). Therefore, it would have been obvious to modify Tian's watermark so that it is derived by quantizing the host signal using an ensemble of quantizers, as taught by Chen, in order to enhance the watermarking process.

Tian and Chen do not explicitly disclose the step of utilizing the recovered watermark to adjust a transmission parameter for at least one later transmitted data set. However, this feature was exceedingly well known in the art. For example, Huard teaches the step of adjusting a transmission parameter for at least one later transmitted data set in response to a quality of transmitted data determined from a recovered signal (sequence number) [pages 352-353, sections 4.2 and 4.3].

Tian, Chen, and Huard are all concerned with image processing methods. Tian and Chen are concerned with transmitting the data with high quality, and explain that a watermark signal is implemented to detect any quality degradation of the signal (Tian, page 15, lines 3-6). Huard's method utilizes the detected quality degradation from a recovered signal to adjust a transmission parameter, thereby maintaining a high quality signal (Huard, page 353, section 4.3). Therefore, it would have been obvious to combine the teachings of Tian, Chen, and Huard so that the recovered watermark is utilized to adjust a transmission parameter for at least one later transmitted data set, in order to enhance the performance of the system by maintaining a high quality signal.

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4. Claims 15-18, 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tian et al., International Publication No. WO 02/23468 A1 ("Tian") and Chen et al., U.S. Patent No. 6,400,826 ("Chen").

Referring to claim 15, Tian discloses a system for monitoring host signal quality comprising:

- a. a watermarking module to embed a recoverable watermark in a data set (page 13, lines 2-11)
- b. a processing module for modifying the data using some parameter set (page 12, lines 4-20. Note that the packet distribution system modifies the data using some parameter set)
- c. a watermark recovery module to determine degradation of the host signal by recovering a signal in the data set (page 13, line 10-page 14, line 10).

Tian does not explicitly disclose that the watermark is derived by quantizing the host signal using an ensemble of quantizers. However, this feature was exceedingly well known in the art. For example, Chen discloses a watermark that is derived by quantizing a host signal using an ensemble of quantizers (col. 11, lines 14-34).

Tian and Chen are both concerned with watermarking techniques. Chen's method achieves efficient packing, facilitates computation of the embedding values, and facilitates the watermark extraction process (Chen, col. 40, lines 14-19). Therefore, it would have been obvious to modify Tian's watermark so that it is derived by quantizing the host signal using an ensemble of quantizers, as taught by Chen, in order to enhance the watermarking process.

Referring to claim 16, Tian further discloses a transform encoding processor to process the data set by transform encoding the data set (page 8, lines 17-24).

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Referring to claim 17, Tian further discloses a packetizer to process the data set by packetizing and transmit the data set (page 12, lines 12-20).

Referring to claim 18, Tian further discloses that the watermark recovery module further detects image frame errors in packet transmitted audiovisual data sets (page 12, lines 12-14).

Referring to claim 20, Tian further discloses that the watermark recovery module quantitatively measures spatial extent of corruption of image data sets (page 14, lines 12-32).

Referring to claim 21, Tian further discloses that the watermark recovery module quantitatively measures temporal duration of corruption of data sets (page 17, lines 7-27).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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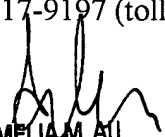
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ck

April 1, 2004


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